Amendments to the Drawings:

The attached sheet of drawings includes a change to Figure 8. As amended, Figure 8 correctly identifies element 1.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS

Amendments

In the descriptive part of the specification, the status of several references has been updated and various minor errors have been corrected. In the paragraph beginning on page 33, line 20, a typographical error has been corrected. It is apparent from the Brief Description of the Drawing that Figure 10 is a cross-sectional view of an assembly as shown in Figure 9 (see page 9, lines 14 - 19). The description of Example 2 incorrectly refers to "Figure 1" (page 33, line 18). That this should be --Figure 9-- is shown by the further description on page 34, lines 3 - 6, which refers to the assembly of Figure 10.

In the claims, claims 15 and 24 were withdrawn as a result of a restriction requirement. Claims 1-14 and 16-20 are withdrawn as being directed to a non-elected species. Claim 21 has been amended to recite that the transverse conductive member comprises metal. Basis for this amendment is found on page 13, lines 4-5 and 29-31 and in original claim 22. Claims 21 and 25 have been amended to recite that the resistive material has a resistivity of less than 10 ohm-cm. Basis for this amendment is found on page 15, lines 17-19. Claim 22 has been amended to recite a maximum dimension. Basis is found on page 16, lines 7-11. Claim 23 has been amended to recite the presence of a transverse conductive member and the position of the electrical device on the printed circuit board. Basis for this amendment is found on page 5, line 33 to page 6, line 30.

In the drawings, an amendment has been made to Figure 8. As described on page 18, lines 5 to 19 of the specification, Figure 7 is a plan view of an assembly of the invention, and Figure 8 is a cross section on line VII-VII of Figure 7. Element 1 is identified on page 18, lines 13 to 16, as "a tubular cross-conductor 1" lying within an aperture. As shown in Figure 7, a plurality of holes is drilled through the PTC element and the holes are then plated. These holes are marked in Figure 7 as element 1. However, in original Figure 8, element 1 incorrectly identifies plating on the second laminar conductive member 5. As shown in red ink on replacement Figure 8, element 1 should identify tubular cross-conductor running through the thickness of the PTC element 7 from first laminar member 3 to second laminar member 5.

These amendments have been made in the interest of rapid prosecution and without prejudice to Applicants' right to prosecute claims of similar or different scope to the unamended claims in one or more continuation applications.

The Rejection Under 35 USC § 112

Applicants respectfully traverse the rejection of claim 23 under the second paragraph of 35 USC § 112, insofar as the rejection is applicable to the amended claims. It is believed that all the rejections have been rendered moot by the proposed amendments.

Claim 23 has been amended to include the language set forth on page 5, line 33 to page 6, line 30.

The Rejection Under 35 USC § 102(b)

Applicants respectfully traverse the rejection of claims 21 and 25 under 35 USC § 102(b) as anticipated by Jensen et al. (U.S. Patent No. 4,593,181), insofar as the rejection is applicable to the amended claims.

Jensen '181 teaches a laminar heating element in which a PTC conductive polymer sheet is positioned between positive and negative electrodes. Electrical buss bars are connected to their respective electrode by means of staples. There is no teaching of the specific resistivity that is required for the PTC material, and therefore, Applicants contend that claims 21 and 25 are not anticipated by Jensen '181.

Applicants respectfully traverse the rejection of claims 21 and 25 under 35 USC § 102(b) as anticipated by Jensen et al. (U.S. Patent No. 4,801,784), insofar as the rejection is applicable to the amended claims.

Jensen '784 teaches a self-regulating PTC heater which is designed to reduce the inrush current. The heater comprises a PTC conductive polymer layer and two electrodes, as well as a means that allows the direction of current flow in a region of the PTC material to change or allows the current path length through the PTC material to decrease as the temperature of the device increases. In Figure 13, cited by the Examiner, a laminar PTC element 6 is positioned between two electrodes 8. At two positions a routed out region 22 extends from one electrode to the other electrode, and through one of the electrodes. The remaining cavity is filled with a resistive material, preferably a polymeric constant wattage material 17 having a resistivity that is preferably higher than that of the PTC material (see column 15, lines 3-12). Unlike claim 21, the material which the Examiner equates with the transverse conductive member (element 22) does not comprise a metal. Jensen '784 teaches that it is, in fact, a conductive polymer having a relatively high resistivity. Unlike claim 25, the cavities (element 22) of Jensen '784 do not pass through the thickness of the assembly

(which includes both the PTC layer and the electrodes). Therefore, claims 21 and 25 are not anticipated by Jensen '784.

The Rejection Under 35 USC § 103(a)

Applicants respectfully traverse the rejection of claim 23 under 35 USC § 103(a) as unpatentable over Jensen et al. (U.S. Patent No. 4,801,784) in view of Ott (U.S. Patent No. 4,959,505), insofar as the rejection is applicable to the amended claim.

Jensen '784 teaches that PTC conductive polymer devices are known as heaters, especially in the forms of tapes to be wrapped around a substrate, e.g. a pipe (column 1, lines 35-42). Preferred uses for the electrical device of Jensen '784 are as sheets (e.g. for use with telecommunications splice cases (Figure 19)) or in tapes. The deficiencies of Jensen '784 are not resolved by the addition of Ott. Ott teaches an electrical component in the form of a chip that can be surface mounted onto a printed circuit board. Ott does not teach or suggest a particular component comprising a transverse conductive member. There is no teaching whatsoever that the device of Jensen '784 should or could be used on a circuit board. Indeed, the use of such devices as part of splice cases, in which there needs to be flexibility teaches away from the installation on a printed circuit board which is rigid. Therefore, there is no reason why one would combine Jensen '784 with Ott, and, even if one did, one would not be taught the electrical assembly recited in claim 23 in which an electrical device of a specific construction is positioned on a printed circuit board in a specific manner such that first and second electrical traces are physically and electrically connected to an laminar conductive member and a second electrode, respectively.

Applicants respectfully traverse the rejection of claim 22 under 35 USC § 103(a) as unpatentable over Jensen et al. (U.S. Patent No. 4,593,181) in view of Jensen (U.S. Patent No. 4,801,784), insofar as the rejection is applicable to the amended claim. [Note that Applicants have assumed that this rejection was intended to be under 35 USC § 103(a), rather than 35 USC 102(b), as indicated in paragraph 9 of the Office Action. The first sentence of that paragraph says "Claims 22 is rejected under *35 U.S.C. 102(b)* as being *anticipated* by Jensen et al. (4593181) *in view of* Jensen (4801784)", but the Examiner concludes the paragraph the statement "such an application would have been *obvious*" [emphasis added], and states that Jensen '181 does not disclose the resistivity requirement of the claim. Applicants believe that this indicates a rejection under 35 USC § 103(a), not 35 USC § 102(b). This conclusion seems to be supported by the combination of documents as is normally done with an obvious rejection, not with a novelty rejection. If Applicants' interpretation of this rejection is incorrect, the Examiner is asked to clarify the rejection.]

Claim 22 is directed to a circuit protection device having a very small size, i.e. a maximum dimension of at most 12 mm. Both Jensen references are directed to electrical devices for use as heaters. See Jensen '181, column 2, lines 55-57: "Referring now to the drawings, FIG. 1 is an isometric view of a part of a heating element *to which the present invention is concerned.*"; Jensen '784, Abstract, "A self-regulating PTC heater". As indicated by the Examiner, Jensen '181 does not teach a preferred resistivity. Although Jensen '784 does disclose certain resistivities, those resistivity values are for heater applications, and generally for heaters prepared from layers of PTC and constant wattage materials. For these applications, the size of the heater is much larger than that of a circuit protection device. See, for example, Jensen '784, column 12, lines 45-49, in which the width of the device is from 20-150 mm, clearly less than having a maximum dimension of "at most 12 mm". One looking to make a circuit protection device having a transverse conductive member allowing current to be conveyed from one surface to another would not look to a combination of two documents clearly directed to heaters. Furthermore, if one did combine these documents, one skilled in the art would not be taught what Applicants presently claim.

Conclusion

It is believed that this application is now in condition for allowance and such action at an early date is earnestly requested. If, however, there are any outstanding issues which can be usefully discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

Marguerite E. Gerstner

Marguerite E. Gerstner
Registration No. 32,695
Telephone (650) 361-2483

ANNOTATED MARKED-UP DRAWING

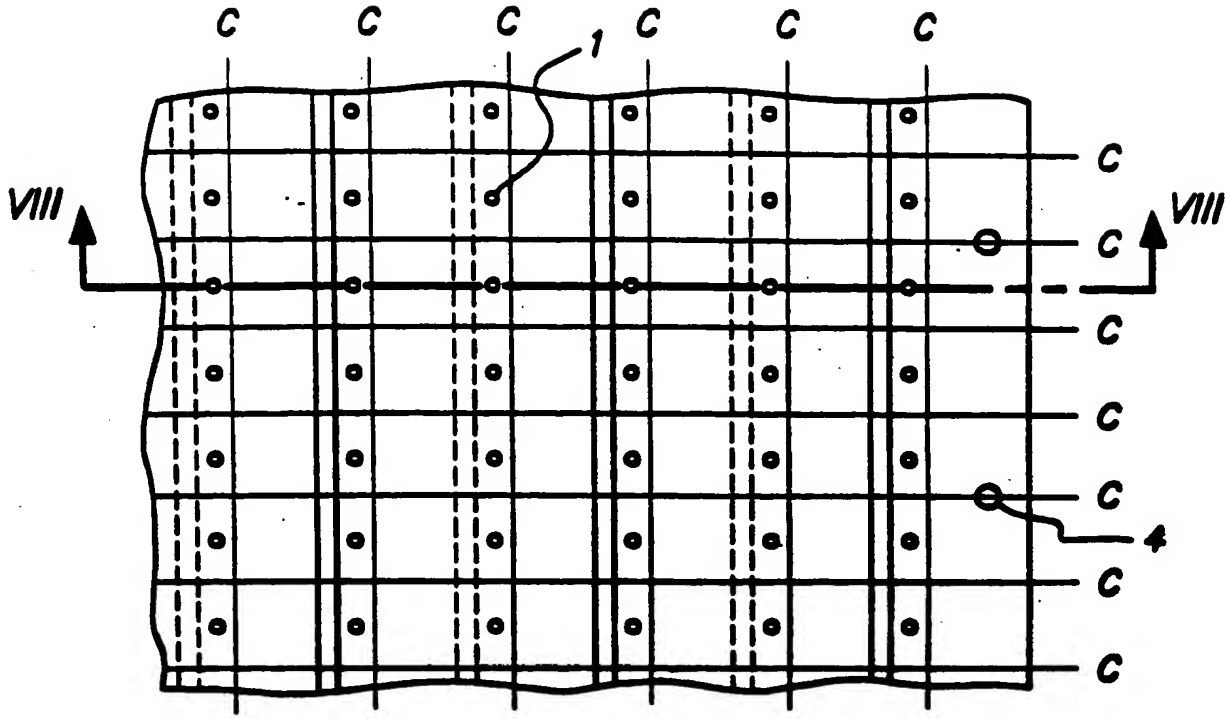

FIG. 7

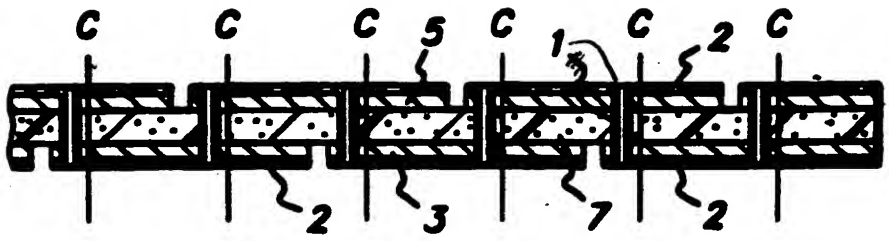

FIG. 8